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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/737,363 | 12/16/2003 | Clark T.-C. Nguyen | UOM 0285 PUSP | 6023 |

22045 7590 04/07/2005

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EXAMINER

SUMMONS, BARBARA

ART UNIT PAPER NUMBER

2817

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/737,363

Applicant(s)

NGUYEN ET AL.

Examiner

Barbara Summons

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 and 23 is/are allowed.
- 6) ☒ Claim(s) 21 and 22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/29/04 & 5/21/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 3/29/04 included a non-patent literature reference to Fujita et al. that appeared pertinent, but was missing pages either not sent or not scanned. Therefore, the Examiner is citing the document on the form PTO-892 and including a full copy to be scanned and sent to Applicants.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 21 and 22 are rejected under 35 U.S.C. § 102(e) as being anticipated by Cornett et al. U.S. 6,734,762.

Fig. 1 of Cornett et al. discloses a method of making a micromechanical device shown, for example, in Fig. 14, the device having a desired mode shape (see col. 6, lines 50-51). The device includes a first structure/resonator 1412 and integral but “non-intrusive” support structures 1404, 1406, 1408 and 1410 attached to the first structure at at least one anchoring point, the desired mode shape being characterized by a plurality of peripheral nodal points (see col. 6, lines 54-60), the method comprising: providing a

Art Unit: 2817

substrate 202 (see col. 6, lines 35-36); forming the first structure/resonator 1412 on the substrate (i.e. from single crystal silicon layer 206 shown in Fig. 2, see also Fig. 12); and forming the non-invasive support structure anchored to the substrate (i.e. at peripheral ring 1402 by silicon dioxide layer 204) to support the first structure/resonator 1412 above the substrate 202, and wherein the at least one anchoring point is defined substantially simultaneously with formation of the first structure/resonator 1412 because the resonator structure 1412 and support structures 1404-1410 are integral and formed at the same time in step 120 of Fig. 1, thus insuring that the anchoring points are precisely located relative to the first structure/resonator 1412 at the peripheral nodal points thereof (see col. 6, lines 50-60).

Allowable Subject Matter

4. Claims 1-20 and 23 are allowable over the prior art of record.
5. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or fairly suggest a micromechanical resonator device having each of the specifically recited features/steps and especially having "a stationary surface area", and having a "desired mode shape" that has "a plurality of peripheral nodal points" and "involves movement of only a fraction of the stationary surface area at resonance", and with a "non-intrusive support structure anchored ... and attached to the resonator at at least one of the peripheral nodal points" (see claim 1, lines 4-10).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Fujita et al. article is being re-cited by the Examiner as discussed above. Additionally, it should be noted that the support springs and the resonator appear to be formed simultaneously [see Fig. 4 especially step (e)].

Clark et al. U.S. 6,856,217 and U.S. 6,628,177 each disclose a disk resonator with a center node and an integral but "non-invasive" support structure 16 (Fig. 1b) formed simultaneously with the resonator (see Fig. 10) to insure that it is positioned at the nodal point of the resonator.

Itasaka et al. U.S. 6,563,400 also shows a resonator with peripheral nodal points (see Fig. 5 and 6) that is supported at the nodal points (Fig. 31) above a substrate 30.

The article to Xie et al. discloses a ring resonator and clearly shows that the prior art disk resonators do not have peripheral nodes [Fig. 2(b)], the publishing date being later than the earliest effective filing date.

Godshall et al. U.S. 5,198,716 discloses a micro-machined resonator that has the resonator and support structure (e.g. layer 82 in Fig. 5 or 100 in Figs. 7-9) that is formed around the entire periphery of the resonator providing an infinite number of precisely placed anchor points.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

Art Unit: 2817

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
April 5, 2005

A handwritten signature in cursive script that reads "Barbara Summons". The signature is written in black ink and includes a long horizontal flourish at the end.

BARBARA SUMMONS
PRIMARY EXAMINER